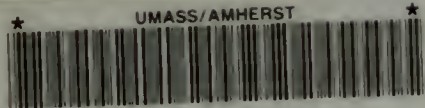


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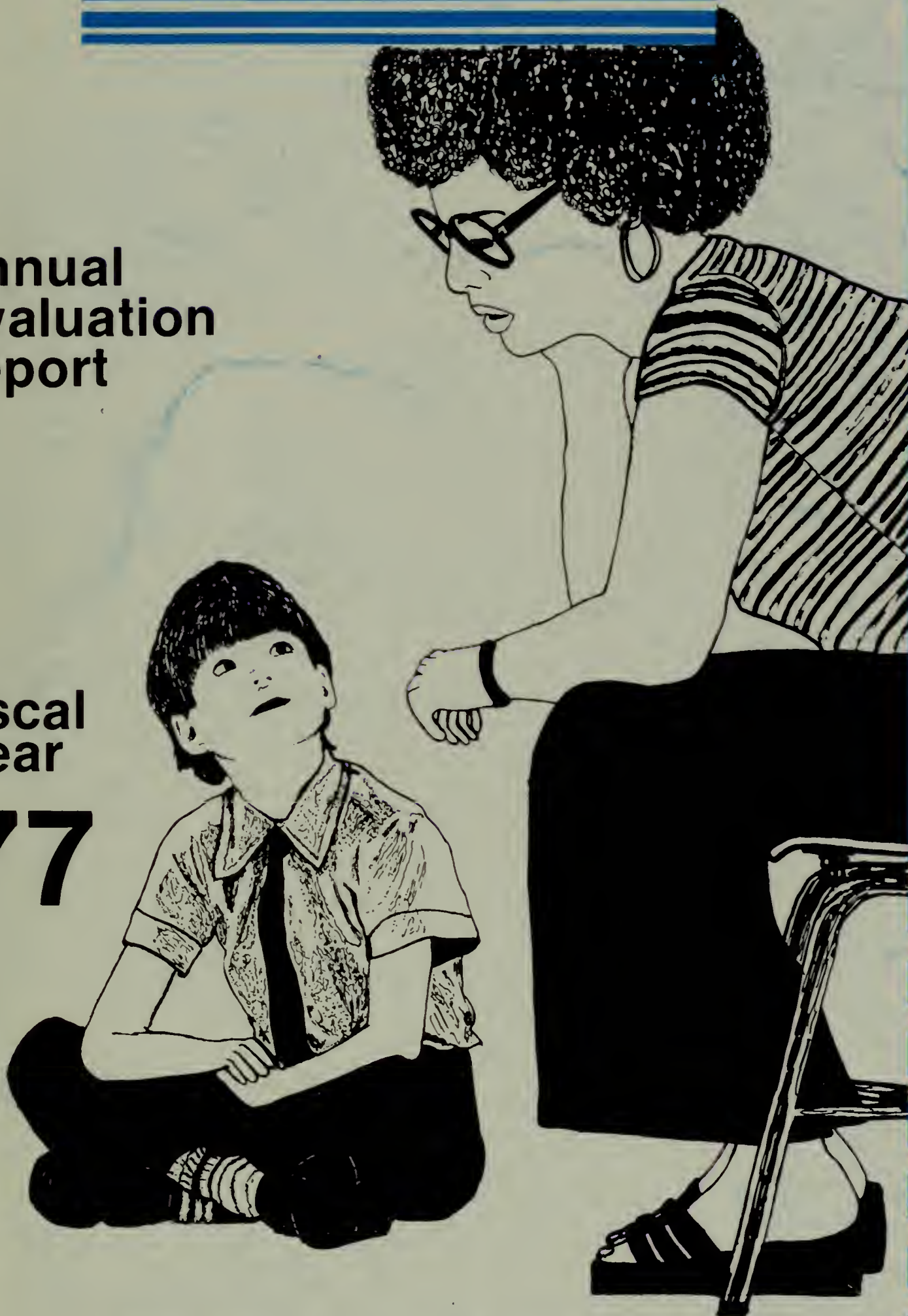


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COMMONWEALTH OF MASSACHUSETTS

Elementary and Secondary Education Act

COMMONWEALTH OF MASSACHUSETTS

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MASSACHUSETTS TITLE I BASIC STATISTICS

TABLE 1
**PARTICIPATION OF
CITIES AND TOWNS IN TITLE 1**

	NUMBER	PERCENTAGE
Received Entitlement	347	98.9
Have No Entitlement	4	1.1
Applied for Entitlement	346	98.6
Did Not Apply for Entitlement	5	1.4

PARTICIPATION OF MASSACHUSETTS COMMUNITIES

A substantial number of educationally disadvantaged children throughout the Commonwealth of Massachusetts were served by Title I of the Elementary and Secondary Education Act [ESEA] during fiscal year 1977 [FY77].

Approximately 99% of the 351 towns and cities in Massachusetts received entitlement to operate compensatory education programs. A small percentage of the communities, 1.4% (5 communities), did not apply for their entitlement. However, 98.6% (346 communities) of those eligible applied for and received their entitlement. [SEE TABLE 1]

<u>COUNTY</u>	<u>ALLOCATION</u>
BARNSTABLE	\$ 731,767.97
BERKSHIRE	737,345.47
BRISTOL	3,045,091.78
DUKES	20,971.40
ESSEX	3,324,412.96
FRANKLIN	252,102.99
HAMPDEN	3,203,938.97
HAMPSHIRE	424,559.28
MIDDLESEX	5,487,367.38
NANTUCKET	26,325.80
NORFOLK	1,706,045.63
PLYMOUTH	1,718,762.33
SUFFOLK	8,150,958.17
WORCESTER	3,300,764.37
TOTAL	\$32,130,414.50

ALLOCATIONS BY COUNTY

Allocation to each county (excluding homes and institutions) is based on the number of low-income children, ages 5-17, in the county. Approximately one-fourth of the state's total grant was earmarked for Suffolk County—Boston, Chelsea, Revere, and Winthrop. The amount of Title I money allocated to each respective county in the Commonwealth is shown on the left.

TITLE I PROJECTS

During FY77, 94% of the Title I projects in operation throughout Massachusetts were conducted during the school year, while 6% were operative during the summer term. [SEE TABLE 2] An overwhelming number of these projects (251) were conducted by individual Local Educational Agencies (LEAs). Seventeen programs were carried out in concert with other school districts (known as Cooperative Programs) and another 22 programs were conducted on a regional school district basis. This accords for the large discrepancy between the number of cities and towns receiving a Title I grant (347) and the total number of programs which were in operation.

TABLE 2
SCHOOL-YEAR AND SUMMER
TITLE I PROJECTS
(1976-1977)

	NUMBER	PERCENTAGE
School-Year	252	94.0
Summer	16	6.0
<hr/>		
TOTAL	268	100.0



STUDENT PARTICIPATION

During FY77, 59,856 children attending both public and non-public schools participated in Title I programs. The unduplicated* count of these children is shown in **TABLE 3** (pg. 5). The greatest number—54,028—were enrolled in pre-kindergarten through grade 6.

FIGURE 1
UNDUPLICATED COUNT OF PARTICIPATING CHILDREN
BY SELECTED GRADE LEVEL CATEGORIES
[PUBLIC AND NON-PUBLIC COMBINED]

Pre-kindergarten and
Kindergarten

10.9%

Grades 1-3

47.5%

Grades 4-6

31.9%

Grades 7-12

9.3%

Special Education, Dropouts, Other

0.4%

FIGURE 1 shows that 47.5% of the Title I population were in grades 1-3, 31.9% in grades 4-6, and 9.3% in grades 7-12. In summary, it is apparent that the vast majority of the students participating in Title I were in grades 1-6.

*Students who participated in more than one project in an LEA are counted only once.



The unduplicated count of participating children enrolled in the public schools—53,270—represents approximately 89% of the total Title I population. [SEE TABLE 4] Of these students, 58.4% were in pre-kindergarten, kindergarten, and in grades 1-3; 31.3% were in grades 4-6, and only 10.3% in grades 7-12 and in the Special Education, Dropouts, or Other categories.

The unduplicated count of participating children enrolled in the non-public [parochial] schools was 6,586 students. [SEE TABLE 5] Approximately 94% were in grades pre-kindergarten-6.

TABLE 3 PUBLIC AND NON-PUBLIC COMBINED				TABLE 4 ENROLLED IN PUBLIC SCHOOLS				TABLE 5 ENROLLED IN NON-PUBLIC SCHOOLS			
				NUMBER	PERCENTAGE	CUMULATIVE PERCENTAGE		NUMBER	PERCENTAGE	CUMULATIVE PERCENTAGE	
Pre-Kindergarten	957	1.6	1.6	947	1.8	1.8		10	0.15	0.15	
Kindergarten	5,539	9.3	10.9	5,295	9.9	11.7		244	3.7	3.85	
Grades: 1	9,535	15.9	26.8	8,355	15.7	27.4		1,180	17.9	21.75	
2	10,032	16.8	43.6	8,812	16.5	43.9		1,220	18.5	40.25	
3	8,852	14.8	58.4	7,729	14.5	58.4		1,123	17.1	57.35	
4	7,934	13.3	71.7	6,888	12.9	71.3		1,046	15.9	73.25	
5	6,853	11.4	83.1	5,909	11.1	82.4		944	14.3	87.55	
6	4,326	7.2	90.3	3,899	7.3	89.7		427	6.5	94.05	
7	2,152	3.6	93.9	1,996	3.8	93.5		156	2.4	96.45	
8	1,756	2.9	96.8	1,615	3.0	96.5		141	2.1	98.55	
9	745	1.2	98.0	730	1.4	97.9		15	0.23	98.78	
10	438	0.7	98.7	432	0.81	98.71		6	0.09	98.87	
11	274	0.5	99.2	267	0.50	99.21		7	0.11	98.98	
12	228	0.4	99.6	224	0.42	99.63		4	0.06	99.04	
Special Education	89	0.15	99.75	26	0.05	99.68		63	0.96	100.00	
Dropouts	8	0.02	99.77	8	0.02	99.70		0	0.00	100.00	
Others	138	0.23	100.00	138	0.30	100.00		0	0.00	100.00	
TOTALS	59,856	100.00		53,270	100.00			6,586	100.00		

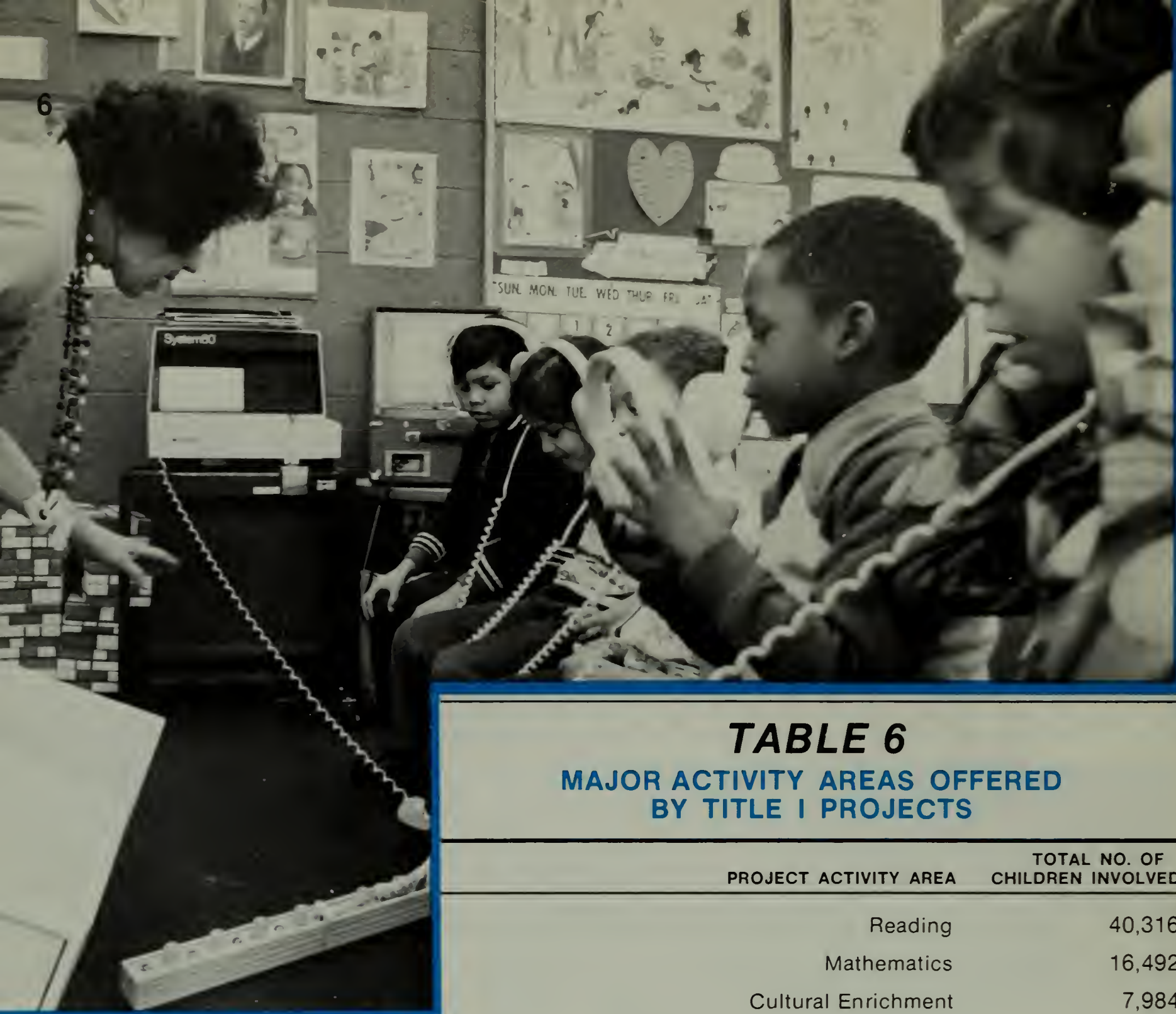


TABLE 6
MAJOR ACTIVITY AREAS OFFERED
BY TITLE I PROJECTS

PROJECT ACTIVITY AREA	TOTAL NO. OF CHILDREN INVOLVED
Reading	40,316
Mathematics	16,492
Cultural Enrichment	7,984
Physical Education or Recreation	1,042
Social and Emotional Development	4,258
Other Language Arts	6,064
Diagnosis of Learning or Emotional Problems	3,112
Food or Clothing Services	2,061
Crafts, Art, Music Or Dramatics	1,516
English as a Second Language	2,353
Other Academic Areas	1,112
Speech and Hearing	1,048
Science	508
Social Studies	471
Industrial Arts	48
Others	18,261
<hr/>	
Duplicated Count TOTAL	106,646

STUDENT PROJECT ACTIVITY AREAS

Student participation in each of the 16 major activity areas in which the 268 Title I projects were involved during FY77 is presented in **TABLE 6**. Clearly, Reading stands out as the major activity area of Title I in Massachusetts, involving the greatest number of students (40,316). Mathematics emerged as the second most frequent activity in which 16,492 Title I children participated. Other major activity areas in which over 4,000 children were involved include Cultural Enrichment (7,984 students), Other Language Arts (6,064 students), and Social and Emotional Development (4,258 students).

TYPES OF STAFF

The types of Title I staff employed [salaried and non-salaried combined] is distinguished between full- and part-time positions. [SEE TABLE 7] A little more than forty percent of the full-time staff were elementary teachers; one-third were teacher aides. Of the part-time personnel, 45.0% were elementary teachers; 17.2% were teacher aides.

TABLE 7
TYPES OF STAFF IN TITLE I PROJECTS
[SALARIED AND NON-SALARIED COMBINED]

STAFF	FULL-TIME		PART-TIME		TOTAL	
	NUMBER	PERCENTAGE	NUMBER	PERCENTAGE	NUMBER	PERCENTAGE
Pre-Kindergarten Teachers	19	0.4	19	1.0	38	0.6
Kindergarten Teachers	298	7.0	151	8.0	449	7.3
Elementary Teachers	1,816	42.9	851	45.0	2,667	43.6
Secondary Teachers	121	2.9	56	3.0	177	3.0
Special Education Teachers	16	0.4	16	0.8	32	0.5
Reading Specialists	184	4.4	53	2.8	237	3.9
Speech Therapists	21	0.5	15	0.8	36	0.6
Librarians	10	0.2	8	0.4	18	0.3
Supervisors and Administrators	96	2.3	100	5.3	196	3.2
Counselors and Psychologists	68	1.6	46	2.4	114	1.9
Attendance and Social Workers	20	0.5	7	0.4	27	0.4
Physicians and Nurses	21	0.5	15	0.8	36	0.6
Teacher Aides	1,433	33.9	325	17.2	1,758	28.7
Library Aides	22	0.5	60	3.2	82	1.3
Others	84	2.0	168	8.9	252	4.1
TOTALS	4,229	100.0	1,890	100.0	6,119	100.0

The salary status of both full- and part-time staff is illustrated in **FIGURE 2**. Approximately 98% of the full-time Title I staff were salaried, more than 85% of the part-time staff were salaried, and the combined percentage of full- and part-time salaried staff was about 94%.

FIGURE 2
SALARY STATUS OF TITLE I STAFF

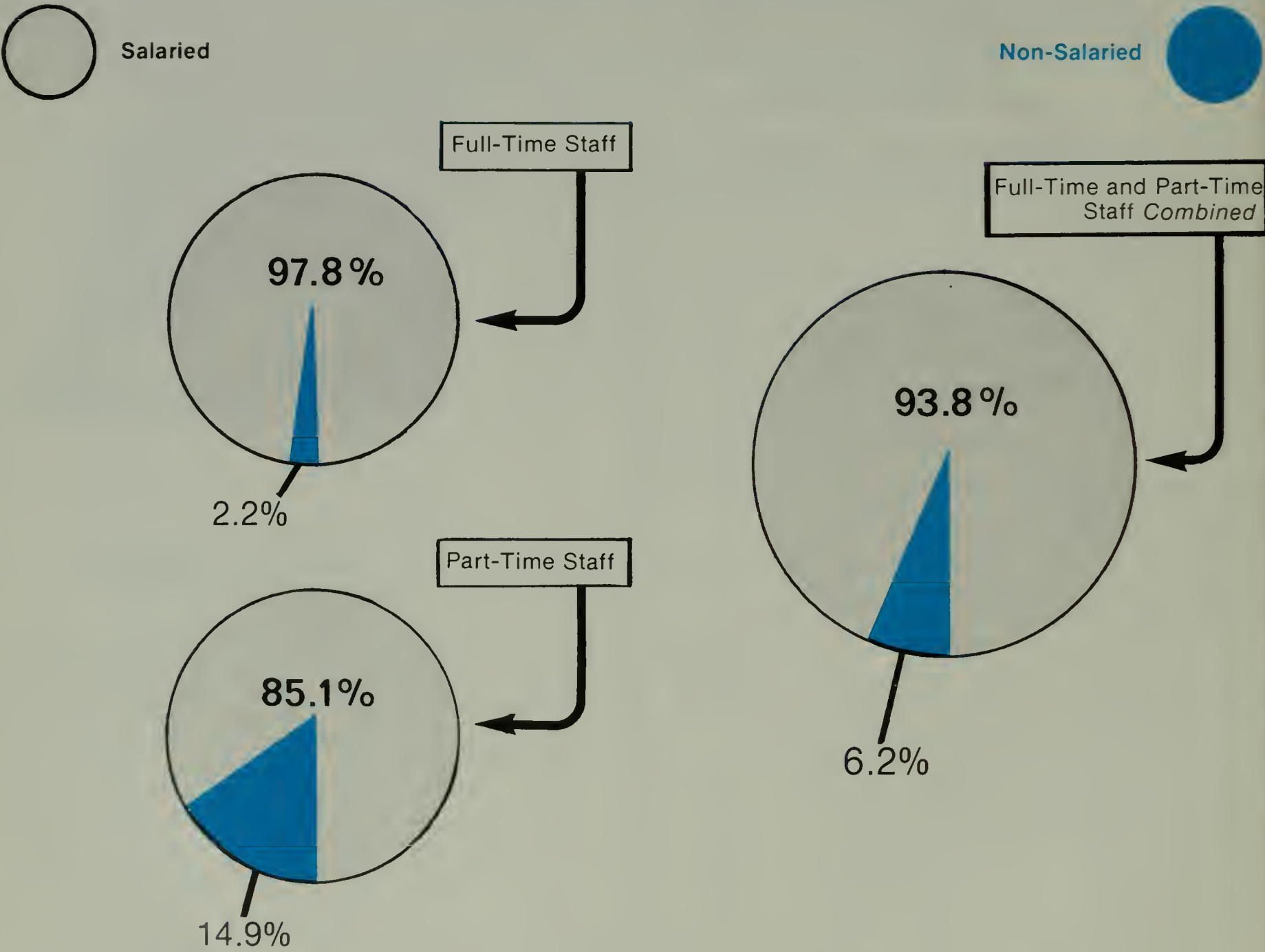
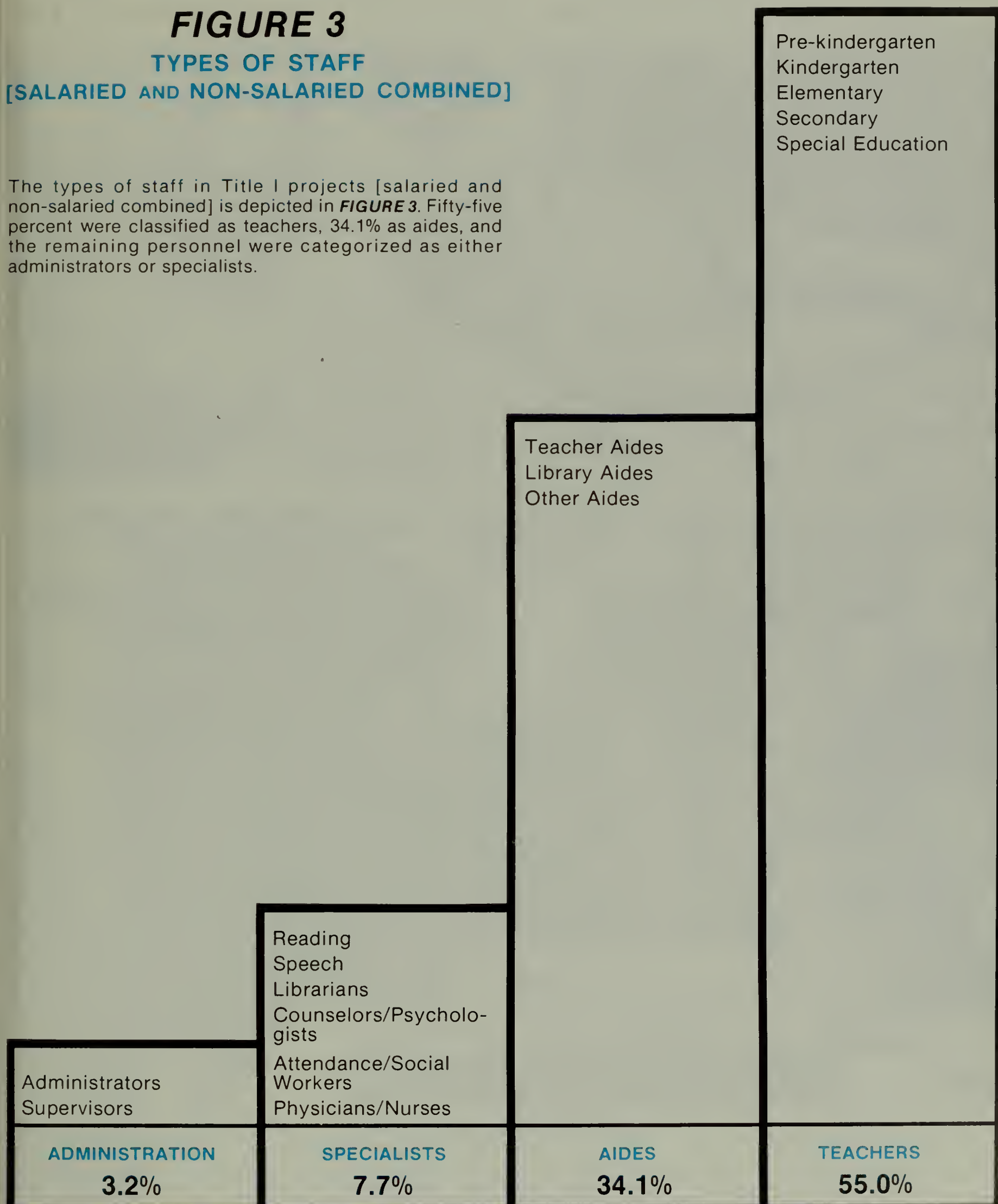


FIGURE 3

TYPES OF STAFF

[SALARIED AND NON-SALARIED COMBINED]

The types of staff in Title I projects [salaried and non-salaried combined] is depicted in **FIGURE 3**. Fifty-five percent were classified as teachers, 34.1% as aides, and the remaining personnel were categorized as either administrators or specialists.





NON-PUBLIC SCHOOL PARTICIPATION

GUIDELINES FOR NON-PUBLIC SCHOOL PARTICIPATION

According to the United States Office of Education guidelines, public school authorities are required to provide non-public school children with equitable opportunities to share the funded services available to public school children under the following regulations:

1. If the non-public school's educationally deprived children reside in an eligible public school attendance area;
2. If the Title I services had not been provided previously by the private or parochial school;
and
3. If the nature and extent of the disadvantaged non-public school children's educational needs could logically be satisfied by the kind of educational services to be given to the public school children.

The following information concerning the participation of non-public school children in Title I programs is based on several different questions in the State's Title I evaluation questionnaire. The number of programs responding to each question varied. Consequently, the totals vary from one topic to the next. The reader should focus on the percentages presented, rather than the actual frequencies.

NON-PUBLIC SCHOOL STUDENT PARTICIPATION

Shown in **FIGURE 4** is the extent of participation of non-public school students in Title I projects. Of the 200 projects reporting, 67 Title I projects indicated that all eligible non-public school students took part in their Title I program and an additional 21 programs indicated that some of their eligible non-public school students participated within their programs.

FIGURE 4 NON-PUBLIC SCHOOL STUDENT PARTICIPATION EXTENT OF INVOLVEMENT*

ALL Eligible Students Participated

46 p

23.0%

SOME Eligible Students Participated

21 p

10.5%

NO Eligible Students Participated

26 p

13.0%

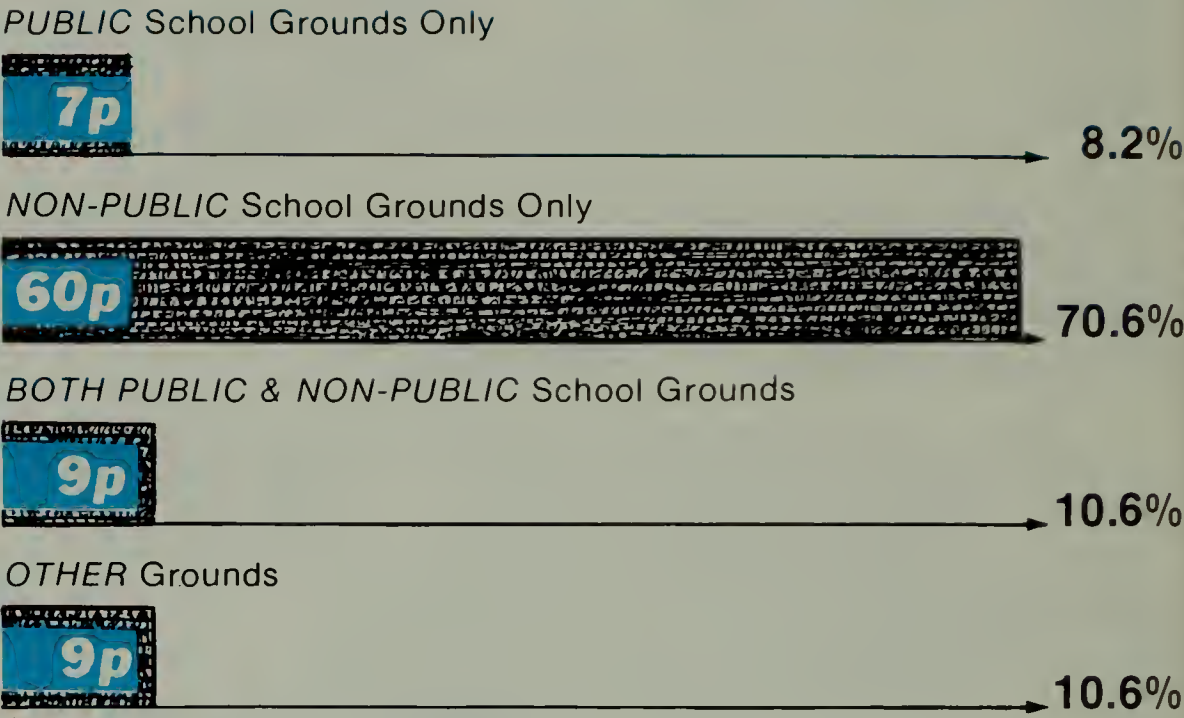
NO STUDENTS ELIGIBLE to Participate

107 p

53.5%

*Based on 200 projects reporting

FIGURE 5
NON-PUBLIC SCHOOL STUDENT PARTICIPATION
ACCORDING TO PROJECT LOCATION*



*Based on 85 projects reporting

TABLE 8
NON-PUBLIC SCHOOL STUDENT PARTICIPATION
TIME PROJECT PARTICIPATION BEGAN

	NUMBER OF PROJECTS	PERCENTAGE
At the beginning of the project (same time as the public school children)	63	94.0
Near the beginning of the project (later than the public school children)	3	4.5
About halfway through the project	1	1.5
More than halfway through the project	0	0.0
TOTAL	67	100.0

Information relative to non-public school student participation according to project location is provided in **FIGURE 5**. About one-twelfth of the 85 projects (8.2%) attended by non-public school children took place on public school grounds, 60 projects (70.6%) on non-public school grounds, and 10 projects (10.6%) each on public and non-public school grounds, and at other locations.

Of the 67 projects reporting, 63 (94.0%) indicated that non-public school students began participation in a Title I project at the beginning, the same time as the public school children. [SEE TABLE 8]

TABLE 9
NON-PUBLIC SCHOOL STUDENT PARTICIPATION
TIME OF DAY PROJECTS BEGAN

	NUMBER OF PROJECTS	PERCENTAGE
<i>During</i> the regular or summer school day	68	89.5
<i>After</i> the regular or summer school day	1	1.3
<i>Before</i> the regular or summer school day	1	1.3
On weekends	1	1.3
Other	5	6.6
TOTAL	76	100.0

Seventy-six projects reported non-public school student participation according to the time of day they began. Sixty-eight (89.5%) noted that non-public school activities took place during the regular or summer school day. Only 2 (2.6%) reported that project activities took place after or before the regular or summer school day, and 6 (7.9%) took place on weekends and at other designated times. [SEE TABLE 9]

TABLE 10
PARTICIPATION IN TITLE I PROJECTS
OF NON-PUBLIC SCHOOL REPRESENTATIVES

TYPE OF ACTIVITY	NUMBER OF PROJECTS INVOLVED
Planning Project Design	70
Evaluation	56
Planning Curriculum and Materials	40
Project Instruction and Services	39
Staff Training	24
Other	34
TOTAL	263

INVOLVEMENT OF NON-PUBLIC SCHOOL REPRESENTATIVES

The major activities and extent of involvement of non-public school representatives in Title I are depicted in **TABLE 10**. A majority of Title I projects reported that the non-public school representatives participated in planning the project design of 70 projects. The second area of greatest participation was in evaluation (56 projects). Forty projects reported that non-public school representatives helped in planning curriculum and materials.

STAFF TRAINING



TABLE 11
PROJECTS OPERATING
STAFF TRAINING PROGRAMS

FUNDING OF TRAINING PROGRAMS

One hundred eighty-two training programs were offered to Title I staff by funding sources during FY77. Sixty-eight programs (37.4%) used Title I monies for staff development, while 46 training programs (25.2%) were funded by the LEAs. Another 54 (29.7%) indicated that staff training programs were jointly financed by Title I and the LEAs.

[SEE TABLE 11]

	NUMBER OF PROJECTS REPORTING	PERCENTAGE
Title I Funded	68	37.4
Funded by School System	46	25.2
Funded Jointly by Title I and School System	54	29.7
Other	14	7.7
TOTAL	182	100.0

PROFESSIONAL AND NON-PROFESSIONAL STAFF PARTICIPATION

A description of the types of staff for whom the training programs were conducted and the actual number of staff members who received training are presented in **TABLES 12** and **13**.

TABLE 12
TYPES OF STAFF-PROVIDED TRAINING

TYPES OF STAFF	NUMBER OF PROJECTS REPORTING	PERCENTAGE
Teachers and Teacher Aides <i>Jointly</i>	91	47.9
Teachers and Professional Staff <i>Only</i>	55	28.9
Teachers and Teacher Aides <i>Separately</i>	18	9.5
Teacher Aides <i>Only</i>	10	5.3
Other	16	8.4
TOTAL	190	100.0

Training for teachers and professional staff only were conducted in 55 projects. Approximately 48% (91) of the projects conducted joint training sessions for both teachers and teacher aides, while 10 projects provided training for teacher aides only.

TABLE 13
**NUMBER OF STAFF MEMBERS WHO
RECEIVED TRAINING**

TYPES OF STAFF	NUMBER OF STAFF MEMBERS	PERCENTAGE
Teacher Aides and Other Non-Professional Staff	1,779	42.7
Teachers and Other Professional Staff	2,385	57.3
TOTAL	4,164	100.0

As shown in **TABLE 13**, a total of 4,164 Title I staff members participated in staff development sessions. Of this total, 57.3% (2,385) were teachers and other professional staff, and 42.7% (1,779) were teacher aides and other non-professional staff members.

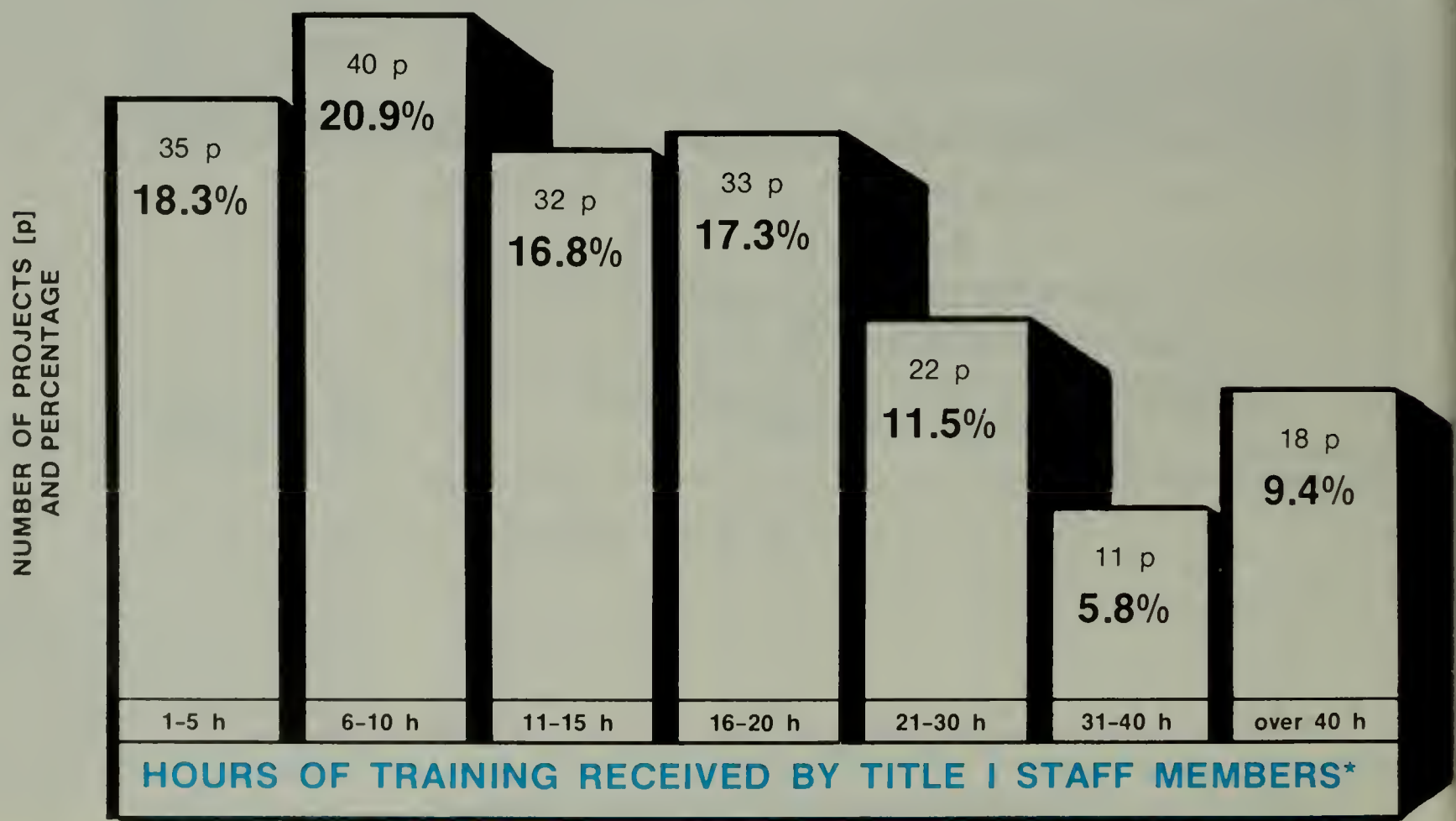
TABLE 14
TIME OF STAFF TRAINING

TIME	NUMBER OF SESSIONS	PERCENTAGE
Prior to and During Project	121	62.7
During the Project Only	66	34.2
Prior to Project Only	3	1.55
Other	3	1.55
<hr/>		
TOTAL	193	100.00

Six out of ten of the sessions were conducted prior to *and* during the project operation. One-third were conducted during the project *only*. **TABLE 14** indicates when training sessions took place.

The intensity of Title I training programs is summarized in **FIGURE 6**. Thirty-five projects indicated that their training sessions operated 1–5 hours; 40 projects reported that sessions operated 6–10 hours; 32 projects noted that sessions were held for 11–15 hours; and 84 projects held sessions from 16–over 40 hours.

FIGURE 6



*Based on 191 projects reporting

TABLE 15
PERSONNEL CONDUCTING STAFF TRAINING*

TYPE OF PERSONNEL	NUMBER OF PROJECTS	PERCENTAGE
Project Director	169	86.7
Local Teachers and Staff Specialists	125	64.1
Specialists from Collèges and Universities	65	33.3
Specialists from Industry and/or the Arts	13	6.7
Specialists in Medical and Psychological Services	34	17.4
Others	27	13.8

*Based on 195 projects reporting

PERSONNEL CONDUCTING STAFF TRAINING

TABLE 15 shows the types of personnel used to conduct staff training. Title I project directors were responsible for conducting the sessions in 86.7% of the projects reporting; local teachers and staff specialists conducted in 64.1% of the projects reporting staff training sessions; and one-third of the projects noted that specialists from colleges and universities assisted with the training.



MAJOR TOPICS OF TITLE I STAFF TRAINING PROGRAMS*

TABLE 16 PROFESSIONAL STAFF			TABLE 17 TEACHER AIDE AND NON-PROFESSIONAL STAFF	
TOPIC	NUMBER OF PROJECTS	PERCENTAGE	NUMBER OF PROJECTS	PERCENTAGE
Orientation to Title I Project	126	64.6	168	86.2
Use of equipment and materials	108	55.4	132	67.7
Use and duties of teacher aides	96	49.2	91	46.7
Subject matter areas	97	49.7	150	76.9
Development of curriculum and teaching materials	84	43.1	140	71.8
Measurement, evaluation, and reporting	82	42.1	142	72.8
Project planning and design	60	30.8	117	60.0
Use of supportive services (counseling, medical, etc.)	40	20.5	69	35.4
Culture and psychology of the educationally disadvantaged	25	12.8	43	22.1
Diagnosis of learning disabilities	32	16.4	62	31.8
Other	8	4.1	14	7.2

*Based on 195 projects reporting

TOPICS COVERED IN TRAINING PROGRAM

The major topics covered in the training sessions for professional and non-professional Title I staff are presented in **TABLES 16** and **17**. Orientation to Title I project was the most common topic for both groups. More than 49% of the projects reporting indicated that the use and duties of teacher aides; the use of equipment and materials; and subject matter areas were other major topics for professional staff. Other major topics for non-professional staff (over 70%) were subject matter areas; measurement, evaluation, and reporting; and development of curriculum and teacher materials.



COMMUNITY AND PARENT INVOLVEMENT

TITLE I PARENT ADVISORY COMMITTEE [PAC]

Over 98% of the 202 projects responding indicated that they had an active Title I Parent Advisory Council [PAC] during FY77. One hundred seventy-one (84.7%) reported that their PAC had served or was being planned to serve each Title I school. There were 7,079 active parents involved in PAC during FY77.

VOTING MEMBERSHIP OF PAC

Parents constituted over 90% of the voting membership of the councils. Of those reporting, 176 (87.1%) projects reported that all the parents who were voting members in the PAC had children who were involved in the 1976-77 school year Title I project or in the 1977 summer project. Only 13 (6.4%) of the projects indicated that other parents were voting members in the council.

TABLE 18
RANK OF ADVISORY COUNCIL ACTIVITY
IN ORDER OF
EFFORT COUNCIL DEVOTED TO EACH ACTIVITY*

R A N K	ACTIVITY	NUMBER OF PROJECTS ASSIGNING RANKS
1	Recommending direction for a specific project in the total program	196
2	Identifying the needs of children to be served	176
3	Reviewing project plans developed by the school	169
4	Recommending direction for the overall Title I effort in the district	143
5	Evaluating existing projects	136
6	Initiating specific plans for the project's activities	98
7	Disseminating information on Title I activities	82
8	Mobilizing personnel and community resources (teacher aides, volunteers, service agencies, etc.)	47
9	Participating in personnel policy	9
10	Other	7

PAC PROJECT ACTIVITY AREAS

Title I directors were asked to rank-order the activities in which their PACs participated according to the effort expended on each activity. For each project, the activities receiving ranks of 1, 2, 3, or 4 were tabulated to establish the order presented in **TABLE 18**. The PACs spent a great deal of time identifying the needs of children to be served and recommending direction for each specific project in the total program.

*Based on 202 projects reporting

NON-VOTING MEMBERSHIP OF PAC

The composition of the non-voting membership of the PACs is shown in **TABLE 19**. One hundred forty-eight public school administrators, 99 parents of public school children served by Title I, and 94 public school teachers made up the majority of non-voting membership. Four Title I projects reported that students were non-voting members.

TABLE 19
NON-VOTING MEMBERSHIP OF TITLE I ADVISORY COUNCILS*

TYPE OF MEMBER	NUMBER OF PROJECTS	PERCENTAGE
Public school administrators	148	73.3
Public school teachers	94	46.5
Parents of public school children served by Title I	99	49.0
Parents of public school children <i>not</i> served by Title I	47	23.3
Non-Public school administrators	26	12.9
Parents of non-public school children served by Title I	41	20.3
Parents of non-public school children <i>not</i> served by Title I	47	23.3
Non-Public school teachers	12	5.9
School Committee members	25	12.4
Anti-Poverty Program representatives	20	9.9
Service Club representatives	4	2.0
Students	4	2.0
Other	13	6.4

*Based on 202 projects reporting

EFFECT ON EDUCATIONAL ACHIEVEMENT

OVERVIEW

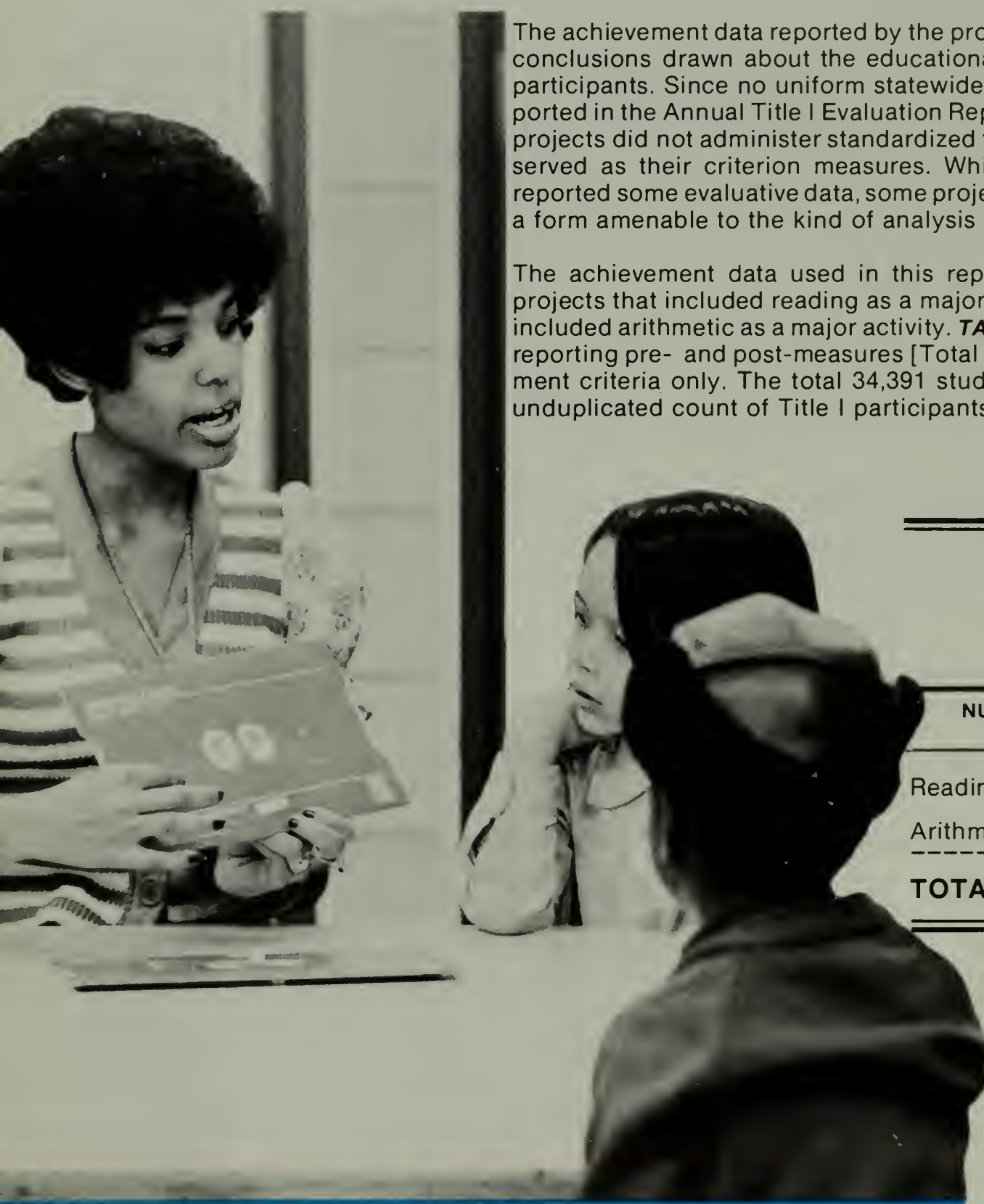
The effects of Massachusetts Title I programs upon reading and arithmetic achievement are presented in this section. Discussion is based principally upon the analysis of achievement scores from standardized tests administered at or near the beginning and end of the programs.

The achievement data reported by the projects impose several limitations on conclusions drawn about the educational achievement of Title I program participants. Since no uniform statewide testing program exists, scores reported in the Annual Title I Evaluation Report vary in number and type. Some projects did not administer standardized tests; other non-standardized tests served as their criterion measures. While the great majority of projects reported some evaluative data, some projects did not report all of their data in a form amenable to the kind of analysis used in this report.

The achievement data used in this report were derived from the Title I projects that included reading as a major activity and from the projects that included arithmetic as a major activity. **TABLE 20** accounts for those projects reporting pre- and post-measures [Total Score] from standardized achievement criteria only. The total 34,391 students represents over 57.5% of the unduplicated count of Title I participants.

TABLE 20
SOURCES OF
ACHIEVEMENT

NUMBER OF PARTICIPANTS TESTED SCHOOL YEAR 1976-1977	
Reading	26,307
Arithmetic	8,084
TOTAL	34,391



ANALYSIS OF ACHIEVEMENT DATA

Standardized achievement tests were administered in the majority of both summer and school year projects. Those tests mainly employed to assess achievement in reading and arithmetic included the *Stanford Achievement Test*, *Metropolitan Achievement Test*, *California Achievement Test*, *Gates-MacGinitie Test*, and *Iowa Tests of Basic Skills*.

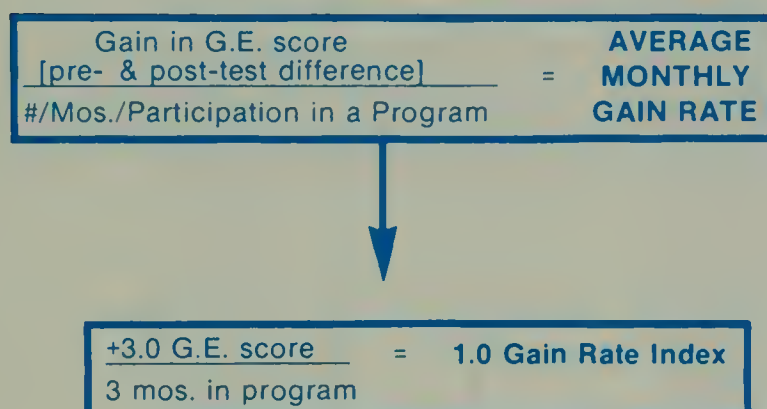
The achievement test results were examined first by analyzing grade equivalent (G.E.) scores. The G.E. score has been widely used in the past to report the achievement of educationally disadvantaged children.

The usable test results from all cities and towns were analyzed by grade level. Gain rates were computed by comparing the gain in the grade equivalent score to the number of months of participation in a program. Average gain rates for all programs using a particular test were computed for each grade level.

The reason for computing gain rates is because the gross actual gain in grade-equivalent score (i.e. the difference between pre- and post-test means shown in **TABLES 21** and **23**) does not necessarily reflect the length of programs or the total gains which may have been made over the length of each program. For the most part, the period between pre- and post-testing was less than the time between the actual beginning and end of the program. The monthly gain rate, therefore, provides a more meaningful index of the program's effectiveness. The difference between the grade-equivalent scores divided by the number of months between pre- and post-testing yields an index of monthly gain rates. (For example: If a pupil gained three months in Grade Equivalent [G.E.] score in three months, his gain rate index would be 1.0; that is, he would have gained at the rate of one month for every month's participation in the program.)

For convenience of interpretation and to provide an overview of test results across the Commonwealth, Total Reading scores from the different tests were grouped for analysis as were Total Arithmetic scores. It is recognized that the results of these tests are not directly comparable. However, it is felt that the groupings do meaningfully depict the trends in reading and arithmetic achievement.

Besides examining the test results using the G.E. scores, the achievement data was also analyzed using the new standard score known as the Normal Curve Equivalent [NCE]. A NCE closely resembles a percentile score with a range of 1-99, a mean of 50 and a standard deviation of 21.06. The NCE facilitates the aggregation of test scores from various different achievement tests. It is estimated by some measurement experts that a gain of 7.0 NCE points is considered educationally significant for a Title I program.



The obtained gain rate between pre- and post-testing can be compared to the average rate of gain of 0.7 generally cited for disadvantaged children.

READING ACHIEVEMENT School Year Projects

Total Reading Achievement for 26,307 students in grades 1-8, represented by pre- and post-grade equivalent means and the average gain rates achieved, is summarized in **TABLE 21**. All the scores increased at post-test time, and the average monthly gain rates of the eight grade levels were 1.0 or better in G.E. scores for each month in the program. This gain rate is equal to the 1.0 monthly gain rate commonly established by test publishers for the average non-Title I child.

TABLE 21
READING ACHIEVEMENT—SCHOOL YEAR PROJECTS
TOTAL READING SCORES*

GRADE	NUMBER OF PROGRAMS	NUMBER OF PARTICIPANTS	GRADE EQUIVALENT PRE-TEST MEAN**	GRADE EQUIVALENT POST-TEST MEAN**	AVERAGE MONTHLY GAIN RATE**
1	73	1,812	1.1	2.0	1.4
2	156	6,294	1.7	2.5	1.1
3	153	5,368	2.3	3.1	1.0
4	144	4,607	2.9	3.6	1.2
5	103	3,863	3.5	4.4	1.2
6	70	2,582	4.1	5.1	1.7
7	28	1,157	4.3	5.3	1.3
8	19	624	4.9	5.7	1.1

*Total Reading Scores are from the *Gates-MacGinitie Reading Test*, *Iowa Test of Basic Skills*, *Durrell—Listening-Reading Series*, *Stanford Achievement Test*, *Wide Range Achievement Test*, *Lee-Clark Reading Readiness Test*, *Botel Reading Inventory*, *California Reading Test*, *Scholastic Diagnostic Test*, *Rutgers University Reading Center Test*, *Primary Reading Profiles*, and the *Metropolitan Achievement Test*.

**Weighted Average

FIGURE 7 presents program gain rates graphically, comparing program gain rates in Reading for grades 1-8 to the national average rate and the gain rate cited for disadvantaged children.

FIGURE 7
TOTAL READING
GAIN RATES IN GRADE EQUIVALENT SCORE
SCHOOL YEAR PROGRAMS [1976-1977]

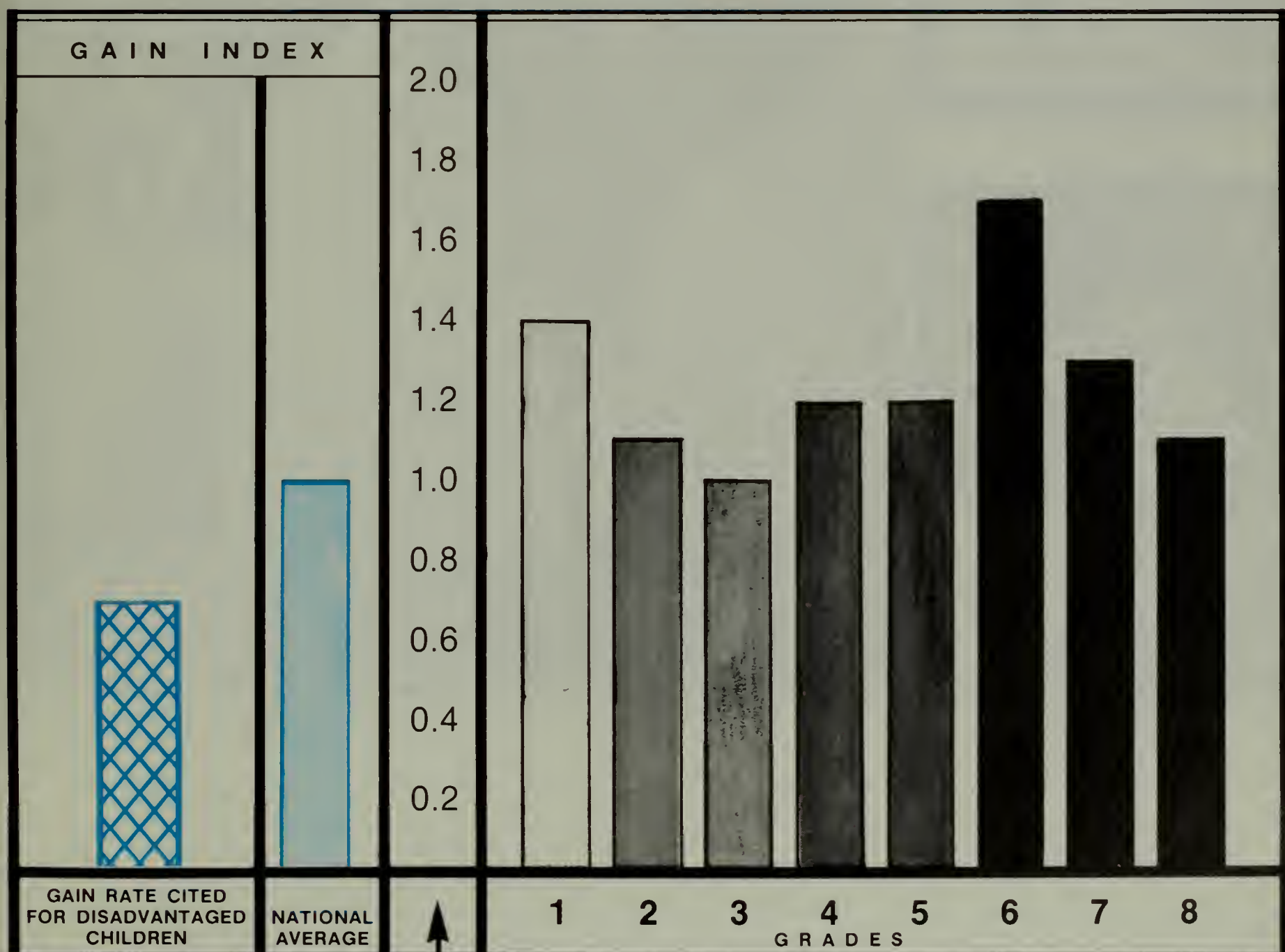




TABLE 22
READING ACHIEVEMENT—SCHOOL YEAR PROJECTS
TOTAL READING SCORES IN NORMAL CURVE EQUIVALENT SCORES

GRADE	NUMBER OF PROGRAMS	NUMBER OF PARTICIPANTS	NCE PRE-TEST MEAN*	NCE POST-TEST MEAN*	NCE MEAN GAIN*
K	19	1,103	24.0	38.6	14.6
1	83	3,675	37.2	53.1	15.9
2	110	4,977	36.8	45.5	8.7
3	109	4,317	36.3	43.0	6.7
4	100	3,829	35.2	39.4	4.2
5	73	3,232	34.4	37.0	5.6
6	50	2,065	32.3	38.9	6.6
7	18	975	24.6	35.4	10.8
8	11	478	26.7	31.5	4.6
9	6	179	41.4	46.2	4.8
10	2	55	36.8	51.8	2.2
TOTAL	581	24,885	35.7*	45.6*	9.9*

*Weighted Average

The results of reading achievement using the new Normal Curve Equivalent [NCE] score for Title I school year programs [1976-77] are shown in **TABLE 22**. In each of grades K-10, the NCE post-test mean exceeded the NCE pre-test mean. According to the developers of the Title I Evaluation and Reporting System (Tallmadge and Horst, 1975), these gains indicate successful Title I programs. It is also interesting to note that, except for the seventh grade, the NCE mean gains declined as the grade levels progressed. Since this is the first year that the Massachusetts Department of Education has aggregated NCE scores across the state, it is not yet clear if this will be a prevalent pattern.

ARITHMETIC ACHIEVEMENT School Year Projects

Total Arithmetic Achievement for 8,084 students in grades 1-8, represented by pre- and post-grade equivalent means and the average gain rates achieved, is summarized in **TABLE 23**. For grades 1-8, all scores increased dramatically at post-test time and the monthly gain rates far exceeded the national norm of 1.0 monthly gain, except for first grade students.

TABLE 23
ARITHMETIC ACHIEVEMENT—SCHOOL YEAR PROJECTS
TOTAL ARITHMETIC SCORES*

GRADE	NUMBER OF PROGRAMS	NUMBER OF PARTICIPANTS	GRADE EQUIVALENT PRE-TEST MEAN**	GRADE EQUIVALENT POST-TEST MEAN**	AVERAGE MONTHLY GAIN RATE**
1	22	272	1.7	2.0	0.5
2	87	1,951	1.6	2.5	1.2
3	81	1,943	2.4	3.4	1.4
4	74	1,552	3.1	4.2	1.5
5	53	1,242	3.8	4.8	1.3
6	42	842	4.5	5.6	1.5
7	8	186	5.0	6.6	2.0
8	5	96	5.4	6.9	1.9

*Total Arithmetic Scores are from the *Stanford Achievement Test*, *Metropolitan Achievement Test*, *SRA Achievement Series*, *Iowa Test of Basic Skills*, *California Achievement Test*, *Wide Range Achievement Test*, *Bobbs-Merrill Achievement Test*, and the *Key Math Diagnostic Test*.

**Weighted Average

FIGURE 8 presents program gain rates graphically, comparing program gain rates in Arithmetic for grades 1-8 to the projected rates for national norms and disadvantaged children. The large gains for these grades can be readily observed.

FIGURE 8
TOTAL ARITHMETIC
GAIN RATES IN GRADE EQUIVALENT SCORE
SCHOOL YEAR PROGRAMS [1976-1977]

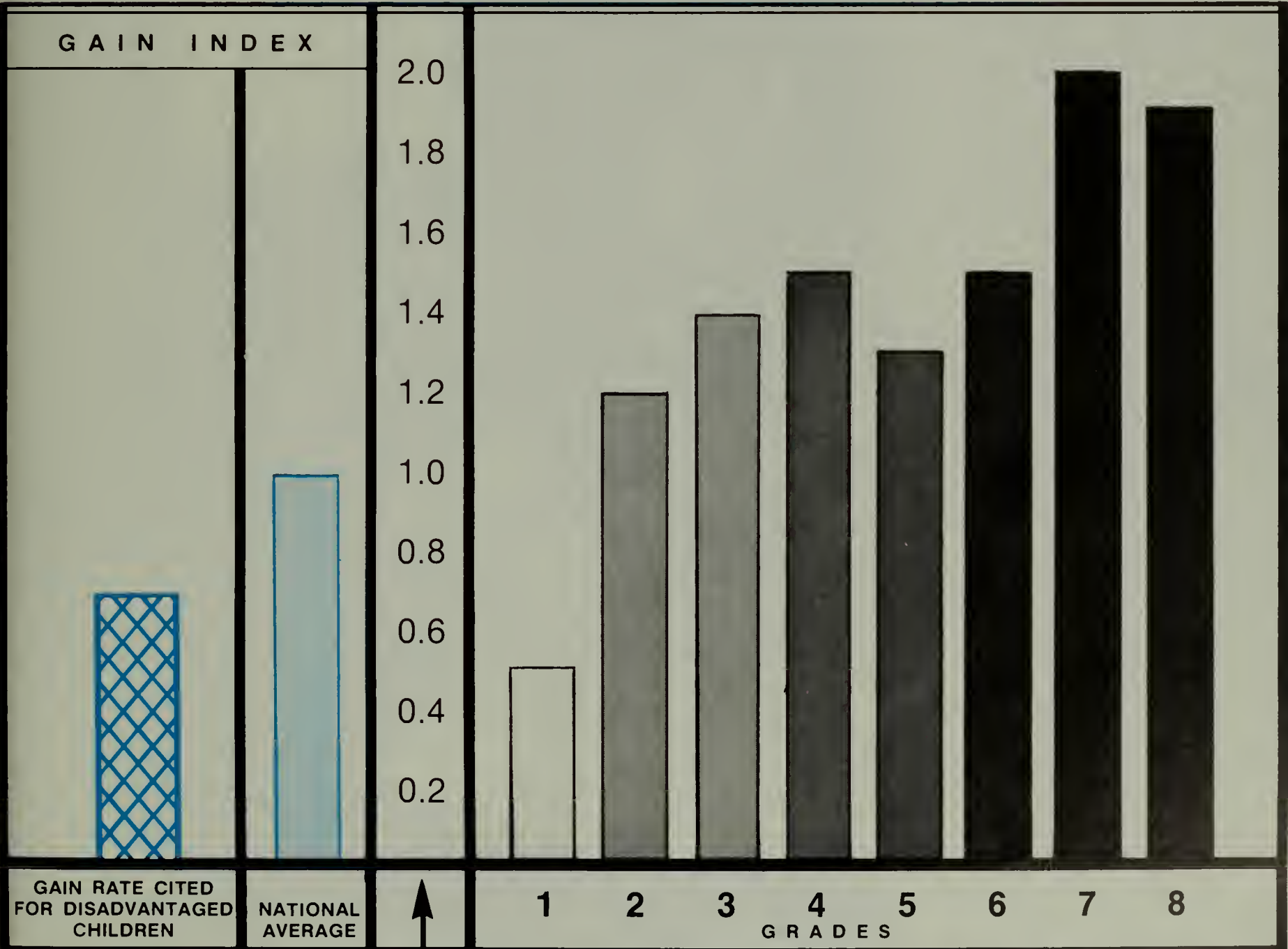


TABLE 24

**ARITHMETIC ACHIEVEMENT—SCHOOL YEAR PROJECTS
TOTAL ARITHMETIC SCORES IN NORMAL CURVE EQUIVALENT SCORES**

GRADE	NUMBER OF PROGRAMS	NUMBER OF PARTICIPANTS	NCE PRE-TEST MEAN*	NCE POST-TEST MEAN*	NCE MEAN GAIN*
K	6	95	38.3	42.2	3.9
1	20	561	41.6	55.7	14.1
2	46	1,335	35.0	46.8	11.8
3	49	1,413	36.3	45.4	9.1
4	44	1,113	31.7	42.0	10.3
5	27	818	35.5	42.3	6.8
6	25	557	35.3	39.8	4.5
7	5	144	30.4	42.6	12.2
8	3	68	26.7	40.4	13.7
9	1	10	24.0	24.0	0.0
10	3	89	29.9	37.3	7.4
TOTAL	229	6,203	35.4*	45.0*	9.6*

*Weighted Average

The results of the arithmetic achievement using the new Normal Curve Equivalent [NCE] score for Title I school year programs [1976-77] are shown in **TABLE 24**. In grades K-10, excepting grade 9, the Title I children had extremely impressive NCE mean gains in arithmetic achievement. For grades 1, 2, 4, 7 and 8, the NCE gains exceeded 10.0 NCE points. In grade 9, representing only one Title I program with 10 children participating, there was no mean difference between the pre- and post-test scores.



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